Appendix A

Proposed License Articles

Proposed License Articles

Article 1. Management of Roanoke River Bypass Reach

Licensee shall participate in a cooperative planning process to delineate measures that will restore water flow to the bypass reach to enhance, maintain and protect fish and wildlife habitat and biological integrity in the bypass reach. Licensee shall execute its duties as a member of the Cooperative Management Team (CMT) established pursuant to Technical Settlement[1] Article FL1 and consisting of NCWRC, NCDENR, USFWS, NMFS and Licensee, with the RPLG as an ex officio member.

Flow Release Plan. Licensee in conjunction with NCWRC and other members of the CMT, shall develop a plan for passing water into the bypass reach from Roanoke Rapids Lake.

(1) The plan shall be developed so as to facilitate management of downstream passage and minimize escapement of resident fish in concert with state and federal fishery management objectives for the lake fishery and the Roanoke River Basin.

(2) Methods of passing water may include but are not limited to spillway gate valves, siphons and auxiliary hydropower turbines.

(3) Methods of preventing resident fish escapement may include but are not limited to screening, repositioning of intake portals, light barriers, sound barriers or electrical barriers.

Licensee shall temporarily use north and south spillway gates to provide flow releases into the bypass reach until a permanent flow release plan is developed. During the temporary use of the spillway gates, Licensee shall set the gates such that the flow will be 325 to 350 cfs or 500 cfs, as applicable, at the mid-point of the power pool normal operating range (129.5 feet MSL). Within nine months of license acceptance and after consultation with the CMT, Licensee shall file with the Commission for approval, a final plan to pass water into the bypass reach via a permanent means or structure. Licensee shall not implement the plan until Licensee is notified by the Commission that the plan is approved. Upon Commission approval, Licensee shall implement the flow release plan including any changes required by the Commission.

Flood Flows. Licensee shall reduce flood flow releases at Roanoke Rapids dam from 35,000 cfs (or any flow greater than 5,000 cfs through the Roanoke Rapids dam floodgates) to 25,000 cfs in consultation with the USACE. Once the flood releases through the Roanoke Rapids floodgates are reduced to 5,000 cfs, Licensee shall reduce the flows in the bypass reach per the rates in the table below. If flood releases occur but

[1] The Technical Settlement is incorporated into the Comprehensive Relicensing Settlement Agreement, to be accepted by the Commission in the order issuing the New License.

do not reach 5,000 cfs through the floodgates, Licensee shall reduce the flows in the bypass reach according to the table below and starting with the maximum flood release level represented in the table.

Table FL1-1

Hour	Release (cfs)
0	5,000
4	4,000
8	3,000
12	2,000
16	1,500
20	1,000
24	700
28	500
32	325

Licensee may temporarily modify the bypass reach flow if required by unusual circumstances upon agreement between Licensee, NCDWQ, NCWRC and USACE.

Flow Study and Determination. Licensee shall develop and implement a flow regime for the bypass reach as described below. If the CMT agrees by consensus to delay releasing flow into the bypass reach in order to study baseline conditions, the study requirements shall be developed as follows: Licensee, as a member of the CMT, shall participate in the development of specific methodologies for deriving this baseline and the determination that sufficient data has been collected to establish the baseline conditions. After the baseline condition is established, Licensee shall begin to pass water into the bypass as required by this Article. If the CMT does not agree to delay releasing flows into the bypass reach, Licensee shall begin to pass flow into the bypass reach within one week of acceptance of the license.

Within the first year after acceptance of the license, Licensee shall convene the CMT in order to develop the following, pursuant to Technical Settlement Article FL1 Section 5.1: (1) A plan to determine the flow regime into the bypass reach to optimize anadromous fish spawning while recognizing the economic impact of lost generation; (2) Monitoring protocols and data standards for each of the variables to measure the parameters needed to evaluate success criteria, which protocols and standards will be designed to test specific hypotheses developed by the CMT; (3) Mutual commitments for monitoring; and (4) Procedures, consistent with Section 12 of the General Procedures of the Comprehensive Relicensing Settlement Agreement, for systematic implementation of this monitoring program, including annual (or other cycles as determined by the CMT) reporting of monitoring results and analysis thereof. The plan (item 1 above) shall be developed within one year following acceptance of the license and shall include success criteria to determine if and when changes in the flow regime are to occur.

Freshet Flows. Pursuant to a schedule provided by NCDWQ, Licensee shall

release "freshet flows." A freshet flow is an event during which Licensee releases 500 cfs into the bypass reach for a duration of twenty-four consecutive hours. Licensee is not required to provide any scheduled freshet flow in excess of seventeen events annually, except that during cycles two, three and four of the bypass reach study, described below, Licensee is not required to provide any scheduled freshet flow in excess of thirteen events annually. Licensee is not required to abide by any modification to the schedule unless Licensee is provided a minimum of ten days notice prior to modification. Licensee shall provide to NCDENR and the NCWRC by March 31 of each year following a year during which freshet flows were scheduled a report of the freshet flows passed into the bypass reach. Whenever flood flows require opening of the Roanoke Rapids dam floodgates for a period no shorter than 24 hours and no longer than twenty-one days, such period shall count as one freshet flow event. Any consecutive such periods shall count as distinct freshet flow events. If during a study cycle the flow for a period of twenty-one days equals or exceeds 500 cfs, the number of freshet flows required for that year will be reduced by one.

Base Flow and First Study Cycle. Licensee shall provide an instantaneous, minimum year-round base flow to the bypass reach of not less than 325 cubic feet per second (cfs). The anadromous fish spawning season is a 90-day period, as determined by the CMT, between March 1- June 15. Licensee shall provide spawning flows in accordance with Table FL1-2. The anadromous fish spawning flow for the bypass reach during the first study cycle consists of a flow of 500 cfs for a duration of 30 days during the spawning season of years three, four and five of the first study cycle. Timing of the anadromous fish spawning flow shall be determined each spawning season by the CMT, based on expected timing of peak spawning runs for target species. Licensee shall release flow into the bypass reach at both the north and south ends of the dam. Licensee shall work in cooperation with the other members of the CMT to determine flow allocations at the north and south ends so that the water is evenly distributed into the bypass reach. Except as provided below, the base flow described in this paragraph shall be the minimum flow during all study cycles.

Second Study Cycle. During the second five-year period of the license, Licensee shall provide an anadromous fish spawning flow in the bypass reach of 500 cfs for ninety days per year. The timing of the flow increase shall be targeted to match the spring spawning flow described in Technical Settlement Article FL2. Licensee shall participate in the CMT to determine appropriate parameters, such as water temperature, to indicate when to initiate the 500-cfs, ninety-day flow. Licensee shall initiate the flow as determined by the CMT. The five-year study cycle may be shortened or extended by the CMT. With approval of the CMT, Licensee may reduce the ninety-day period, and may reduce to 300 cfs the base flow during the winter months to offset energy losses resulting from the increased spawning flows. In all other respects, the second study cycle shall be identical to the first study cycle.

Third Study Cycle. At the end of the second study cycle, Licensee shall participate in the determination by the CMT regarding whether additional data is needed to meet the goals and objectives for the bypass reach as described in this Article. If the

CMT determines that a third study cycle is necessary, during the third five-year period of the license Licensee shall provide an anadromous fish spawning flow of 750 cfs for ninety days per year in the bypass reach. In all other respects, the third study cycle shall be identical to the second study cycle.

Fourth Study Cycle. At the end of the third study cycle, Licensee shall participate in the determination by the CMT regarding whether additional data is needed to meet the goals and objectives for the bypass reach as described in the Article. If the CMT determines that a fourth study cycle is necessary, during the fourth five-year period of the license Licensee shall provide an anadromous fish spawning flow of 1000 cfs for ninety days per year in the bypass reach. During the fourth study cycle, if Licensee has constructed Phase II Fish Passage Facilities and has begun passing Adult American shad (pursuant to Technical Settlement Article FS2), the 1000 cfs flow will be reduced to 900 cfs. In all other respects, the fourth study cycle shall be identical to the second study cycle.

The continuing base flow requirement and additional flows for study cycles are summarized in the table below.

Table FL1-2

	Base flow and Cycle 1	Cycle 2	Cycle 3	Cycle 4
Duration	5 years	Up to 5 years	Up to 5 years	Up to 5 years
Base Flow	325	325	325	325
Anadromous Fish Spawning Flow	325 500*	500	750	1000 900
Freshet Days	17	13	13	13
Potential 90 day winter flow	325	300	300	300
Annualized flow	333	374	436	497

Cycle 1 flows of 325 cfs in years 1 and 2; 500 cfs in years 3, 4, and 5 for a duration of 30 days during the anadromous fish spawning season.

Adjustments after year 30. Upon completion of the study cycles as defined in this Article, should all members of the CMT agree that none of the tested flows (325, 500, 750 or 1000 cfs) are sufficient (using the criteria decided upon by the CMT in year one of the license) for optimizing use of the bypass reach for spawning and/or nursery purposes by anadromous species, additional studies may be conducted employing higher flows beginning 30 years after acceptance of the New License.

Adjustments, Monitoring and Funding. If during the study cycles described above flood flows are in effect, Licensee in cooperation with other CMT members may adjust the study plan schedule. If during one of the study cycles described above a drought occurs, and the declaration is less than 2500 cfs during cycle two, less than 2750 cfs during cycle three, or less than 3000 cfs during cycle four, the spring spawning flow in the bypass reach shall be adjusted to the weekly declaration minus 2000 cfs and the minimum flow in the bypass shall be the base flow described in Table FL1-2.

Notwithstanding any other provision of this license, the minimum flow in the bypass reach shall not be less than 325 cfs except if lowered to 300 cfs in accordance with this Article.

The monitoring cycle for the above study will consist of five-year periods beginning when Licensee accepts this license and lasting for the duration of the study cycles or until such time as the CMT determines that further monitoring is not necessary. Licensee shall notify the Commission and shall provide public notice at least sixty days prior to ending the monitoring. Prior to the first year of each monitoring cycle, Licensee shall report to the Commission on any modifications of flows implemented by the CMT during any study cycle. Licensee shall extend or shorten each study cycle in whole year increments if the CMT so determines.

Licensee shall monitor biota within the bypass reach for the purposes of determining the species composition and relative abundance of resident fishes at five-year intervals and mollusks at seven- to ten-year intervals. Licensee shall participate in the development by the CMT of an annual monitoring plan to evaluate the effectiveness of the bypass reach flow plan in accomplishing the goals and objectives for anadromous species established in this Article, and in the establishment by the CMT of specific methodologies and a schedule for monitoring. Licensee in consultation with the CMT shall prepare a report at the conclusion of each 5-year interval detailing the methodologies and results of the monitoring program. Licensee shall distribute the report to all interested natural resource agencies.

Licensee shall fully fund the resident fish and mollusk studies, not to exceed $20,000 for resident fish and $10,000 for mollusks per survey. Licensee shall fully fund the anadromous fish studies up to $30,000 per year. For all such studies, Licensee shall fund one-third of the cost of such studies exceeding the amounts set forth in this paragraph, but only when matching funds from other parties are made available as set forth in Technical Settlement Article FL1 section 8.0**.**

Final Determination of Flows. The final anadromous fish spawning flow shall be no more than the maximum or less than the minimum flow of that studied pursuant to this Article. The base flow in the bypass reach shall be 325 cfs, with the exception of the potentially reduced flows of no less than 300 cfs during the winter months. The final anadromous fish spawning flow shall be determined by NCDWQ in consultation with the CMT following the second, third or fourth study cycle. If the CMT is unable, as described under the third and fourth study cycles, to determine whether additional data is necessary, the flows described in the second and third study cycles shall continue until the CMT makes such determination. If the Licensee has completed the fourth study cycle or the CMT determines, as described in the third and fourth study cycles, that no additional data is necessary, the Licensee shall provide the average flow of the last two executed study cycles until the final flow is determined. The Licensee shall provide the final anadromous fish spawning flows for the remainder of the license term.

Article 2. Target Flow Releases from the Roanoke Rapids Dam

Within 30 days of acceptance of the License, Licensee shall maintain minimum flows as described in Technical Settlement Article FL2, Section 2.0, to protect the water quality standards and enhance the biological integrity downstream of the dam.

For the period of April 1 through June 15, Licensee shall provide flows determined by consultation with the USACE and the NCWRC as provided in Technical Settlement Article FL2, Section 2.4. When USACE declares a drought, Licensee shall maintain drought minimum flows pursuant to Technical Settlement Article FL2, Section 4.0.

Article 3. Restrictions on Within-day Peaking Operation

The Licensee shall take the actions specified in this Article to assess and, if determined to be necessary pursuant to paragraphs (1)(a) and (5) below, reduce the contribution of the Project's within-day peaking operations to erosion of the banks of the Roanoke River downstream of Roanoke Rapids Dam and to potential adverse effects on fish and benthic macroinvertebrates downstream. Such reduction will be implemented to contribute to recruitment and survival of flora and fauna in numbers and locations that are adequate to sustain or restore the biological integrity of the bank and instream ecosystems. In making modifications to Project operations under this Article, the Licensee shall follow the approach developed by the Cooperative Management Team (CMT) described in paragraph (4).

(1) *Release Restrictions.* If the CMT determines that the Project's within-day peaking operation, during the period outside of April 1 through June 15, contributes to the adverse effects, the Licensee shall modify such operation.

(a) After the first monitoring cycle as described in paragraph (5), if the CMT determines a causal link exists between the Project's unmodified within-day peaking operation and bank erosion or other adverse effects on any of the species and communities listed in paragraph (3), then the Licensee shall implement an approach, as determined by the CMT, that modifies: (A) the maximum peaking flow, (B) the difference between base flow and peak flow on peaking days, (C) the ramping rates, (D) the duration of base flow (in hours) between peaking releases, (E) the peaking period as defined in Technical Settlement Article GP2, or (F) another aspect of peaking operation as appropriate to reduce adverse effects of such operation. Seasonal variations may also be incorporated.

(b) Following each subsequent monitoring cycle during the license term, if the CMT determines that a causal link continues to exist between the Project's within-day peaking operation and bank erosion or other adverse effects on the aquatic species and communities listed in paragraph (c), then the Licensee shall implement an additional step change, as determined by the CMT, to further reduce such adverse effects.

(c) Each step taken according to paragraphs (1)(a)-(b) will reduce the discretion available to the Licensee for within-day peaking operation by a proportional amount equivalent to 5 divided by the license term in years. The monitoring program in paragraph (4) will include a protocol to calculate the proportionality of steps.

(d) The restrictions on within-day peaking operation under paragraphs (1)(a)-(c) will be superseded by the flow schedules in License Articles 2, 5 and 6 in the event of a conflict.

(e) The Licensee shall provide public notice 60 days prior to any changes in within-day peaking operations under paragraphs (1)(a)-(c) above.

(2) *Limitations on Release Modification*. The Licensee shall implement any ramping requirement additional to those described in License Article 2, on the declining limb of the peaking event (ramp down). The ramp down rate will not be slower than 2,000 cfs per hour. The Licensee is not required to make modifications to the USACE Weekly Declaration as defined in Technical Settlement Article GP2. The number of peaking days in a year will not be reduced below the frequency of unregulated high flow days, on a monthly or seasonal basis. The minimum number of days experiencing within-day peaking will not be reduced below 40 days per year.

(3) *Species, Communities, and Erosion Variables to be Monitored*. The monitoring program established under paragraph (4) initially will address: fish and benthic macroinvertebrates and bank erosion. The Licensee shall use data assembled under Technical Settlement Article FL4, Section 4.0, augmented as necessary to evaluate the effects of within-day peaking operation on bank erosion. The CMT may revise the lists of species, community types, and erosion variables to be monitored prior to the beginning of any new monitoring cycle.

(4) *Cooperative Management for Monitoring Program*. Within one year of the issuance of a new license, the Licensee shall form a Cooperative Management Team (CMT). For the purpose of this Article, the CMT will consist of the NCWRC, NCDENR, USFWS, NMFS, TNC, and the Licensee, with the RPLG as an *ex officio* member. The Licensee, in consultation with other members of the CMT, shall develop and implement a monitoring program that shall include:

(a) A plan to meet management objectives for each of the selected species and communities listed in paragraph (3). Bank erosion will be assessed subject to objectives developed in Technical Settlement Article FL4.

(b) Success or decision criteria. These will clearly define the criteria that the CMT will use to determine whether the next monitoring phase will be required.

(c) Monitoring protocols and data standards for the species, communities, and erosion variables under paragraph (3). These protocols and standards

will be designed by the Licensee, in consultation with the CMT, to test specific hypotheses concerning whether or how the Project's within-day peaking operation causes or contributes to adverse effects on any of these species, communities, or erosion variables. The CMT will use the initial monitoring protocols and data standards for bank erosion developed under Technical Settlement Article FL4, although it may revise such protocols and standards if it determines such revisions to be necessary to evaluate the contribution of within-day peaking operation to bank erosion.

(d) Mutual commitments for monitoring species, communities, and bank erosion under paragraph (3). The Licensee's responsibility under the monitoring program shall be $30,000 in each year of the license term. Any portion of the $30,000 not utilized shall be carried forward to the Licensee's future annual budget cycles and shall be in addition to the $30,000 allocated for those cycles. In the thirtieth year of the license, the Licensee shall consult with the CMT to determine if an increase in funding of the monitoring program is appropriate.

(e) Procedures for systematic implementation and reporting the results of this monitoring program.

(5) *Monitoring Cycle*. The monitoring cycles will consist of five-year periods beginning when the Licensee accepts the license, and will last for the duration of the license term, or until the CMT determines that further monitoring is unnecessary. Prior to the first year of each monitoring cycle, the Licensee shall report to the Commission on any flow modifications implemented under paragraphs (1)(a)-(c). In order to allow reasonable time to establish the program in paragraph (4), monitoring will not begin during the first monitoring cycle until the second year. The Licensee shall provide notice to the Commission and the public at least 60 days prior to ending the monitoring. The CMT may determine to extend or shorten any monitoring cycle in whole-year increments.

Article 4. Restrictions on Within-Week Peaking Operation

The Licensee shall take the actions specified in this Article to evaluate and, if determined necessary pursuant to paragraph (1)(a) below, reduce the contribution of the Project's within-week peaking operation to growing season floods, erosion, and suppression of bank vegetation, in the riparian ecosystems of the Roanoke River below Roanoke Rapids Dam. Such reduction is intended to contribute to recruitment and survival of flora and fauna in numbers and locations that are adequate to sustain bank ecosystems and provide forage and cover for fish and other aquatic organisms when the banks are partially or wholly inundated. The Licensee shall implement this article in cooperation with the other members of the Cooperative Management Team (CMT) established under paragraph (4).

(1) *Release Restrictions*. During the growing season, the Licensee shall modify within-week peaking operation for electricity generation, as follows.

(a) After the first monitoring cycle in paragraph (5), if the CMT determines a causal link exists between the Project's rescheduling of the USACE weekly declaration (as defined in Technical Settlement Article GP2) and adverse effects on any of the species and communities listed in paragraph (3), then the Licensee, after consultation with the CMT, shall: (A) reduce the maximum number of peaking days per week, (B) reduce the maximum number of consecutive peaking days in a week, (C) establish a higher minimum flow for non-peaking days, or (D) by some other systematic means, modify the Project's redistribution within the week (i.e., between days) of the weekly declaration.

(b) Following each subsequent monitoring cycle during the license term, if the CMT determines a causal link continues to exist between the Project's rescheduling of the USACE Weekly Declaration and adverse effects on the species and communities listed in paragraph (3), the Licensee, after consultation with the CMT, shall choose an additional step change to further modify the Project's rescheduling of the weekly declaration.

(c) If the Project's rescheduling of the USACE Weekly Declaration is modified under paragraph (1)(a), the Licensee shall reduce its net rescheduling of the weekly declaration by half. Thereafter, each step taken according to paragraph (1)(b) will either reduce or increase the rescheduling of the weekly declaration by half of the difference implemented in the previous step. The monitoring program under paragraph (4) will include a protocol to calculate the proportionality of steps.

(d) The restrictions on within-week peaking operation in paragraphs (1)(a)-(c) will be superseded by the flow schedules in License Articles 1 and 2 in the event of a conflict.

(e) The Licensee shall provide public notice to the Commission 60 days prior to any modification in within-week peaking operation under paragraphs (1)(a)-(c).

(2) *Limitations on Licensee Responsibilities.* This Article does not constrain the Licensee's within-day peaking operation and does not require modification to the USACE Weekly Declaration. The maximum operational duty under this Article will occur when the daily flow through the Roanoke Rapids Dam equals the mean daily value of the USACE Weekly Declaration.

(3) Species, Communities, and Erosion Variables to be Monitored. The monitoring program established under paragraph (4) will address the following species unless the CMT revises the list within the constraints of this Article.

(a) Seedlings of the following tree species: acer rubrum (red maple), Carya aquatica (water hickory), Fraxinus pennsylvanica (green ash), Liquidambar styraciflua (sweet gum), Nyssa aquatica (tupelo gum), Nyssa biflora (swamp black gum), Quercus laurifolia (laurel oak), Quercus lyrata (overcup oak), Quercus michauxii (swamp

chestnut oak), Quercus pagoda (cherrybark oak), Taxodium distichum (bald cypress), Ulmus americana (American elm).

(b) Animal species: Macro-lepidoptera (large moths and butterflies including forest tent caterpillar), Cambarus spp. (terrestrial crayfish), and benthic macro-invertebrates in tributary streams.

(c) Natural communities, which will be monitored in the last growing season of every fourth monitoring cycle: Forested Peatlands (Atlantic white cedar, bay forest, mixed bay-pine forest, swamp blackgum, bay-swamp blackgum, mixed deciduous peatland); Swamp Forests (tupelo-cypress); and bottomland hardwoods, including maple, oak, green ash, sweetgum, and tupelo.

(d) Bank vegetation (herbaceous and woody cover).

(e) Bank erosion, including both scouring and mass wasting. The monitoring program under paragraph (4) will determine the specific variables.

Prior to the beginning of the first or any new monitoring cycle, the CMT may revise the list of species, community types, and erosion variables to be monitored.

(4) *Cooperative Management for Monitoring Program*. Within one year of the issuance of a license, the Licensee shall form a Cooperative Management Team (CMT). For the purpose of this Article, the CMT will consist of NCWRC, NCDENR, USFWS, NMFS, TNC and the Licensee, with the RPLG as an *ex officio* member. The Licensee, in consultation with the CMT, shall develop and implement a monitoring program that shall include:

(a) Management objectives and success measures for each of the selected species and communities and erosion variables in paragraph (3).

(b) Monitoring protocols and data standards for the species, communities, and erosion variables under paragraph (3). These protocols and standards will test specific hypotheses concerning whether or how the Licensee's rescheduling of the USACE Weekly Declaration causes or contributes to adverse effects on any of these species or communities or erosion variables listed in paragraph (3) and to further test the proportionate impacts of such rescheduling and the USACE water control plan, including the weekly declaration as well as flood control operation.

(c) Procedures for selecting lands on which to monitor the species and communities under paragraph (3) and for locating water-level gages in the floodplain as needed to implement paragraphs (1)(a)-(c).

(d) Mutual commitments for monitoring species, communities, and bank erosion under paragraph (3). The Licensee's financial responsibility under this paragraph shall be: (A) $100,000, and an additional $25,000 if matched by other CMT members, in

the first year after acceptance of the license; and (B) $50,000, and an additional $25,000 if matched by other CMT members, in each subsequent year for the license term. Any funds not used in a designated year shall be carried over to future budget cycles and shall be in addition to the funds allocated for those budget cycles. The match of other CMT members may include in-kind services or third-party contributions.

(e) Procedures for systematic implementation and reporting the results of this monitoring program.

(5) *Monitoring Cycle*. The monitoring cycle will consist of five-year periods beginning when the Licensee accepts the new license and lasting for the duration of the license term or until such time as the CMT determines that further monitoring is not necessary. Prior to the first year of each monitoring cycle, the Licensee shall report to the Commission on any flow modifications implemented under paragraphs (1)(a)-(c). Monitoring will not begin during the first monitoring cycle until the second year. The Licensee shall provide public notice to the Commission at least 60 days prior to ending the monitoring. The CMT may determine to extend or shorten the monitoring cycle in whole-year increments.

Article 5. Flood Control Operation

Licensee shall work in conjunction with the USACE to reduce flood flows in the main stem river gradually during the months of May through September to minimize the effects of hypoxic water inflow pursuant to Technical Settlement Article FL5. Subsequent changes in such schedule may be undertaken in consultation with USACE and NCDWQ consistent with the provisions of Technical Settlement Article FL5, provided that the Licensee files notification with the Commission detailing any such changes within 30 days after conclusion of its consultations.

Article 6. Downstream Water Quality

Water flowing through the Roanoke Rapids hydropower turbines shall meet or exceed an instantaneous dissolved oxygen concentration of 4.0 mg/l (ppm). Water flowing through the Roanoke Rapids hydropower turbines shall meet or exceed a daily mean dissolved oxygen concentration of 5.0 mg/l. The daily mean oxygen concentration shall be calculated as the mean of 24 hourly instantaneous analyses. If dissolved oxygen concentrations immediately upstream of the Project do not meet or exceed an instantaneous value of 4.0 mg/l or a daily mean of 5.0 mg/l, Licensee shall notify the Raleigh Regional Office of the NC Division of Water Quality (NCDWQ) and water flowing through the Roanoke Rapids hydropower turbines shall equal or exceed the upstream dissolved oxygen concentration.

Licensee shall measure oxygen concentrations in the Roanoke Rapids tailrace. During any periods when the dissolved oxygen water quality standard is not met in the tailwaters below Roanoke Rapids dam, Licensee shall begin sampling dissolved oxygen

levels within two business days in Lake Gaston and in the tailwaters below Lake Gaston. Within six months of acceptance of this License, Licensee shall determine, with the consent of NCDWQ, the sampling points in Lake Gaston tailwaters and upstream of the Lake Gaston dam.

Licensee shall maintain data on a real-time basis via internet and forward such data to the Wetland/401 Unit, the Ecosystems Unit and the Raleigh and Washington Regional Offices of NCDWQ every other month from November 1 through May 31 and monthly from June 1 through October 31. Licensee shall submit data electronically and shall notify NCDWQ in writing when data have been transmitted. Licensee may submit accompanying printed copies of such data. Data must include flow measured in cfs, dissolved oxygen concentrations measured in mg/l and water temperature measured in ^{o}C.

In the event of temporary emergency conditions negatively affecting compliance with the above dissolved oxygen requirements, Licensee will cooperate in good faith with NCDWQ and NCWRC to take such reasonable steps to protect the water quality of the Roanoke River below the Roanoke Rapids dam.

Licensee shall begin compliance with this Article within 30 days of acceptance of this license.

(2) For the purposes of flow augmentation downstream of the Project, Lake Gaston has three feet of drought storage between 200' msl and 197' msl, which is approximately 60,000 acre-feet of storage. If all four of the following conditions are met, Licensee shall begin augmenting downstream flows from Lake Gaston storage in consultation with USACE, NCDWQ and NCWRC: (a) USACE is operating Kerr reservoir under its drought management strategy; (b) Roanoke Rapids is not in a hydropower peaking mode and is only releasing drought minimum flows as directed by the USACE drought management strategy or Licensee is maintaining drought minimum flows as required by Technical Settlement Article FL2 Section 4.2; (c) A weekly declaration from USACE is issued that is less than the total of drought minimum flow required at Roanoke Rapids dam; and (d) Lake Gaston water level is above 197' msl. Licensee shall use Lake Gaston storage, at the direction of NCDWQ, to augment flows so that Licensee complies with any minimum flow requirements in this license. Licensee shall notify the president of the Lake Gaston Association and post information on its "Lake Information" web page regarding initiation of usage of Lake Gaston storage.

When the water level in Lake Gaston is lowered to 197' msl, Licensee shall no longer be required to augment downstream flows in accordance with the preceding paragraph. At such time Licensee shall release from Roanoke Rapids dam a flow equal to the flow entering the Project from upstream, adjusted for consumptive withdrawals, evaporation, and inflows to Lake Gaston and Roanoke Rapids Lake; and Licensee shall regulate Lake Gaston from 197.5 msl to 196.5 msl to meet system operational needs.

When the USACE weekly declaration begins to exceed Roanoke Rapids dam

drought minimum flows, Licensee shall not exceed drought minimum flows at Roanoke Rapids dam or operate in load following mode until the level in Lake Gaston reaches 199.5 msl

(3) Licensee shall study downstream water quality in accordance with this Article. Licensee shall fund three of the current USGS continuous water quality monitoring stations for dissolved oxygen and temperature at Halifax, Oak City and Jamesville. Licensee shall provide funding annually to NCDENR. This obligation to fund monitoring shall terminate upon a determination by NCDWQ and NCWRC that Licensee's operations do not or no longer affect downstream water quality, and shall be reinstated at such time as subsequent operational changes enable NCDWQ to demonstrate that water quality monitoring is again necessary.

Within the first year of monitoring, Licensee shall reach agreement with NCDWQ and NCWRC regarding a method of evaluating data collected. The study cycle shall be five-year periods, which periods shall be the same as those under Technical Settlement Articles FL3 and FL4. Licensee shall forward any data received or produced by Licensee to the Wetland/401 Unit, the Ecosystems Unit and the Raleigh and Washington Regional Offices of NCDWQ every other month from November 1 through May 31 and monthly June 1 through October 31. Licensee shall submit data electronically and shall notify NCDWQ in writing when data have been transmitted. Data must include all available parameters received or produced by Licensee, including stage or flow, site, date, time, depth, dissolved oxygen concentrations in mg/l, and water temperature in ^{o}C.

If during evaluation of water quality data described in this Article, NCDWQ and/or NCWRC finds that scientific data establish a causal link between rescheduling by Licensee of the USACE weekly declaration and reduction of water quality in the main stem of the river to below State standards, Licensee shall, with concurrence of NCDWQ and NCWRC, identify and implement operational changes that will significantly reduce such water quality impacts. Each step taken to reduce such water quality impacts must reduce rescheduling by Licensee of the USACE weekly declaration by a proportional amount equivalent to five divided by the period of the license in years. Thus, if as the result of monitoring Licensee takes one step to reduce its rescheduling of the USACE weekly declaration at the end of each monitoring cycle, by the end of the last monitoring cycle, each day Licensee will release one seventh of the USACE weekly declaration. The exact means for calculating the proportionality of steps will be determined by the Licensee, NCDWQ and NCWRC.

Nothing in this Article shall constrain Licensee's flexibility scheduling releases during a peaking day. The maximum limitation on Project operation under this Article is reached when the daily water flow through the Roanoke Rapids Dam equals one-seventh of the USACE weekly declaration.

In the event of emergency water quality conditions, Licensee shall cooperate in good faith with NCDWQ and NCWRC to take such reasonable steps to protect the water quality of the Roanoke River below the Roanoke Rapids Dam.

Article 7. Roanoke Rapids and Lake Gaston Fishery Enhancement

The Licensee shall enhance the sport fisheries in Lake Gaston and Roanoke Rapids Lake as set forth in this Article.

The Licensee shall provide to the NCWRC funding in the sum of $50,000 per year for the purpose of enhancing the sport fishery in the Project waters. Additionally, for the purpose of enhancing the sport fishery in Lake Gaston by supplemental stocking of fish, the Licensee shall provide to the VDGIF funding in the sum of $10,000 per year.

The Licensee shall work with the NCWRC to develop a fisheries plan for implementation on a five-year cycle. Licensee's consultation shall not interfere with the NCWRC's statutory authority but shall be appropriate as the owner and operator of the Project.

The Licensee shall make the first annual payments as required under this Article within six months of the Licensee's acceptance of this license. Subsequent annual payments shall be made between July 1 and July 30 annually. The first and last year's payments shall be prorated to reflect any time period less than a full year.

Article 8. Diadromous Fish Restoration

(1) Licensee, shall participate in a Diadromous Fish Restoration Technical Advisory Committee ("DFRTAC") as defined by Technical Settlement Article FS2, Section 1, with the USFWS, NMFS, NCWRC, NCDMF, and VDGIF ("Agencies"), which will provide a forum for advice and cooperation in restoration of diadromous fish in the Roanoke River Basin. During the term of the license, Licensee shall cooperate in the restoration of diadromous fish in the Roanoke River Basin.

(2) The Licensee shall abide by the dispute resolution provisions of Technical Settlement Article FS2, governing the DFRTAC, including abiding by the results of that dispute resolution process.

American Eel:

(3) Beginning in the first year after license issuance, the Licensee will sample and evaluate elver / yellow eel distribution in the tailrace and bypass of Roanoke Rapids Dam as well as along the dam, from January through December. This study will be repeated in years 2 through 4. Those eels captured below Roanoke Rapids Dam in this sampling program will be marked with appropriate marking techniques and released in Roanoke Rapids Lake. Sampling schedule in years 2 through 4 of the license may be reduced to correspond to the period(s) of peak upstream migration as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures.

(4) In year 4 of the license, the Licensee will work cooperatively with the Agencies to design an eelway for Roanoke Rapids Dam. An eelway shall consist of an Agency-approved safe, timely and effective passage for American eels.

(5) In year 4 of the license, the Licensee shall begin, in cooperation with the other members of DFRTAC, an A. eel distribution evaluation on a 3-year cycle. The study area will focus on the tributaries to Roanoke Rapids Lake. The Licensee will conduct at least 3 study cycles but no more than 6 study cycles as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures.

(6) In year 5 of the license, or earlier if so decided by the members of DFRTAC through its dispute resolution process, Licensee will place in operation an eelway at Roanoke Rapids Dam as designed and approved in year 4. In cooperation with the Agencies, Licensee will mark eels at the base of the dam and determine the percentage passed upstream. This "efficiency" study shall continue for a maximum of 4 years. If decided to be necessary by the members of DFRTAC through its decision-making and dispute resolution procedures, the Licensee may be required to perform two additional years of passage efficiency study during the spring period when flow in the bypass is increased per Technical Settlement Article FL1.

(7) In year 5 of the license, the Licensee shall begin cooperative evaluation of eel distribution at the base of Gaston Dam using a sampling design cooperatively developed by the members of DFRTAC and approved by the Agencies**.** This study will be repeated in years 6 through 8 of the license

(8) In year 8 of the license, the Licensee will work cooperatively with Agencies to design an eelway for Gaston Dam. An eelway shall consist of an Agency approved safe, timely and effective passage for A. eels.

(9) In year 9 of the license, Licensee will place in operation an eelway at Gaston Dam as designed and approved in year 8. Passage may be delayed if 150 eels are not collected at the base of Gaston Dam over the months of February through June (or other months as determined through initial sampling, with a sampling design decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures). If a threshold of 150 eels is not collected, sampling shall continue annually until the threshold is met and construction and operational changes designed to enhance downstream passage at the Gaston Dam will be delayed accordingly. The threshold number of 150 eels may be modified by the members of DRFTAC through its decision-making and dispute resolution procedures, based on experience gained while sampling the base of Roanoke Rapids Dam in years 1 thorough 5. In cooperation with the Agencies, Licensee will mark eels at the base of the dam and determine the percentage passed upstream. This "efficiency" study shall continue for a maximum of 4 years.

(10) In year 9 of the license, the Licensee shall begin in Lake Gaston an American Eel distribution evaluation similar to that undertaken in tributaries to Roanoke

Rapids Lake pursuant to paragraph 5. If passage is delayed under section 9 of this Article, this evaluation will begin in the year passage is provided.

(11) In year 9 of the license, the Licensee, in cooperation with the other members of DRFTAC**,** shall conduct a Literature Review and evaluation of current Best Available Technology for downstream passage.

(12) In year 12 of the license the Licensee shall provide safe, timely and effective downstream passage as approved by the Agencies and /or amend operations for eel at Roanoke Rapids Dam consistent with the results of paragraph 11 above at Roanoke Rapids Dam. Safe, timely and effective downstream passage may include use of the Roanoke Rapids bypass system and technology similar in costs to strobe lights at the Roanoke Rapids Dam submerged weir or other comparable technology and seasonal night time operational modifications. Any agency decision to require means of passage costing substantially more than agreed to herein shall require exercise of the mandatory conditioning and prescriptive authority reserved to the Secretaries of Commerce and Interior in this license.

(13) In year 15 of the license, the Licensee shall provide safe, timely and effective downstream passage for eel at Lake Gaston Dam as determined to be necessary by the agencies. Installation of downstream passage may be delayed beyond year 15 if so decided by the members of DFRTAC through its decision-making and dispute resolution procedures. Safe, timely and effective downstream passage will include use of technology similar in costs to strobe lights on the submerged weir at the Gaston Dam, a bypass system and operational changes. (Bypass system not to exceed the bypass flow at Roanoke Rapids Dam and operation of system to target time of day and period in year of peak outmigration.) Any agency decision to require means of passage costing substantially more than this shall require exercise of the mandatory conditioning and prescriptive authority reserved to the Secretaries of Commerce and Interior in this license.

(14) The Licensee will contribute to the above efforts as specified in Table FS2-1

TABLE FS2-1

Description of Study	Years	Licensee Cost Share %
1. Distribution in tailrace/bypass. (Timing, distribution along dam or tailrace, mark trapped eels repeat as necessary per FL1)	1 – 4	100*
2. Design of eelway at RR	4	100*
3. Passage/trapping efficiency @ RR, 2 yrs. additional study if flows are increased in spring	5 – 8	100*
4. Eel distribution at base of Gaston, same as 1 above.	5 – 8	100*
5. Eel distribution in RR Lake. (Studies concentrate on tribs, study cycle every 3 years for 6 cycles (section	5 – 20	100**

3.7)		
6. Decision on Eelway at Gaston	7	NA
7. Design eelway at Gaston if required	8	100*
8. Passage/efficiency study @Gaston	9 – 12	100***
9. Literature review of downstream passage @ RR	9	100*
10. Eel distribution in Gaston (see 5 above)	9 – 24	100**
11. RR and Gaston downstream passage	12, 15	100*

* Licensee to fund 100%, but any agency contribution in process will be in-kind contribution and not reimbursed by Licensee.
** Agencies will perform any open lake portions of this study, Licensee responsible for tributaries.
*** This should be similar to Roanoke Rapids

American Shad:

(15) The Licensee shall provide safe and effective upstream and downstream passage for the number of American shad supported by the available habitat upstream of its facilities, for the duration of the license term, according to the phased implementation program set forth in sections 15-30. If the criteria for initiating Phase 2 are met pursuant to section 27, the Licensee's upstream passage obligation is limited to 50,000 American shad annually (the estimated capacity of habitat in the basin between Roanoke Rapids and Kerr Dams). If the criteria for initiating Phase 3 are met pursuant to section 31, the Licensee's obligation to provide safe and effective upstream passage of American shad under this agreement shall extend up to 500,000 American shad annually (the estimated capacity of habitat in the basin above Roanoke Rapids Dam).

(16) Beginning in the first year of the license, the Licensee shall cooperate with the other members of DFRTAC in conducting a survey of American shad spawning and nursery habitat in the headwaters of Lake Gaston and in appropriate tributaries of Kerr Reservoir. Assessment of potential habitats will continue in subsequent years until all habitats have been evaluated. The Licensee will assist in funding according to Table FS2-2.

(17) The Licensee will contribute to fry stocking efforts in the Roanoke River basin per Table FS2-2. The Licensee, with the agreement of the other members of DFRTAC, may make an appropriate reduction in its contribution to A. shad fry stocking at such time additional partners are added to fund the stocking effort. The Licensee's contribution for A. shad stocking in the upper Roanoke River Basin will cease when the NCWRC no longer stocks fry in the upper Roanoke River Basin upstream of Roanoke Rapids Dam. Should the Licensee's contribution to A. shad stocking in the upper Roanoke River basin cease, Licensee shall fund the A. shad fry stocking effort in the lower river below the Roanoke Rapids dam, consistent with its obligations under Technical Settlement Article FS2.

(18) The Licensee shall contribute to the cost of an Annual Population Estimate and Spawning Stock Assessment study per Table FS2-2. The Licensee's contribution to

the Annual Population Estimate and Spawning Stock Assessment shall end after the fifth year of Phase 2.

(19) The Licensee will provide funding to the NCWRC to coordinate Adult Shad Telemetry Studies, Outmigrating Juvenile Shad Evaluation, and Habitat Identification and Prioritization per Table FS2-2. The Licensee's contribution to the Outmigrating Juvenile Shad Evaluation study shall end after the third year of Phase 2.

(20) The Licensee shall fund 50% of the cost for a Roanoke River Diadromous Fish Restoration Coordinator. The coordinator's duties shall include coordination and monitoring and other duties beneficial to the NCWRC and the Licensee. The Licensee's contribution for the Coordinator position will continue for the term of the license. The Licensee's contribution to the funding of the Coordinator's position may be reduced as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures at such time as additional funding partners are added to the restoration effort.

(21) Licensee shall assume 25% of costs exceeding the funds established in Technical Settlement Article FS2-2 on an annual basis if study costs designated in Technical Settlement Article FS2-2 are exceeded.

(22) In the first year of the license, the Licensee shall conduct a literature-based downstream passage and turbine mortality study for post-spawned adults and outmigrating juvenile A. shad. The Licensee shall conduct further studies as determined by the members of DFRTAC through the decision-making and dispute resolution mechanisms provided for in this license. Further studies of downstream passage and turbine mortality of outmigrating juvenile and post spawned adult shad shall be required in year 2 only if mortality rates are expected to be higher than 7% for juvenile and 15% for post-spawned adults according to the first year study.

(23) In the first year of the license, the Licensee, working with the other members of DFRTAC, shall develop a plan for an initial trap and transport program for Phase 1 fish passage.

(24) In year 2 of the license, the Licensee will implement an initial trap and transport program approved by the members of DFRTAC through its decision-making and dispute resolution procedures capable of providing safe and effective transport (passage) for a minimum of 2,000 adult fish in viable spawning condition. The initial trap and transport program will begin phased passage of fish to upstream habitats and provide fish for telemetry studies of fish behavior in the reservoirs and tailwater habitats. In the year after the Licensee has demonstrated (or built under Article 25) a successful transport technique, the Licensee will begin to fund telemetry studies on up to 150 fish per year within the Roanoke Rapids and Gaston Reservoirs or as otherwise decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures. The telemetry studies will be conducted for a period of three years or until 450 tagged adult A. shad have been placed in the reservoirs.

(25) The Licensee will not be required to construct permanent trap/sort/transport facilities at Roanoke Rapids dam to collect fish for this initial stage before Year 5, unless during years 2 and 3 the initial trap and transport program specified in section 24 fails to meet the objective of Phase 1. If, after two years NMFS and/or FWS determine that the Licensee's initial trap and transport efforts have not been successful, then the Licensee shall immediately begin the design and construction of a safe and fully effective trap and transport facility and operation that meets the engineering criteria of NMFS and/or USFWS. The facility is to be constructed and fully operational within 2 years. If the criteria ("triggers") described in section 27 of this Article have been met, then the facilities shall be designed and constructed to meet the objective of Phase 2, i.e., sized to transport 500,000 fish. If the criteria ("triggers") described in section 27 of this Article have not been met, then the facility and operation shall be designed to meet the objectives of Phase 1, as determined by NMFS and/or USFWS in coordination with other members of DFRTAC. The facility may be designed and constructed to transport 50,000 to 500,000 fish, as the Licensee chooses.

(26) **TABLE FS2-2:** Summary of Licensee cost contributions[2]

STUDY / YEAR	**Yr. 1**	**Yr. 2**	**Yr. 3**	**Yr. 4**	**Yr. 5**
A. Shad Fry Production	$14,167	$23,167	$21,600	$31,600	$31,600
Telemetry Adult Shad			76,600	76,600	76,600
Annual Population Assess.				44,945	44,945
Outmigrating Juvenile	35,600	45,200	45,200	45,200	45,200
Upstream Habitat	8,300	8,300	8,300		
Lit. Rev. Downstream Pass.	100%				
Study Coordinator				40,000	40,000

	Yr. 6	**Yr. 7**	**Yr. 8**	**Yr. 9**	**Yr. 10**
A. Shad Fry Production	31,600	40,600	31,600	31,600	38,267
Telemetry Adult Shad	4,200				
Annual Population Assess.	14,915	14,915	14,915	14,915	29,765
Outmigrating Juvenile	49,200	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 11	**Yr. 12**	**Yr. 13**	**Yr. 14**	**Yr. 15**
A. Shad Fry Production	31,600	31,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Outmigrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 16	**Yr. 17**	**Yr. 18**	**Yr. 19**	**Yr. 20**
A. Shad Fry Production	40,600	31,600	31,600	31,600	38,267

[2] Specified costs do not address fish passage facilities.

Annual Population Assess.	14,915	14,915	14,915	14,915	29,765
Outmigrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 21	**Yr. 22**	**Yr. 23**	**Yr. 24**	**Yr. 25**
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	14,915
Outmigrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 26	**Yr. 27**	**Yr. 28**	**Yr. 29**	**Yr. 30**
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Outmigrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 31	**Yr. 32**	**Yr. 33**	**Yr. 34**	**Yr. 35**
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

	Yr. 36	**Yr. 37**	**Yr. 38**	**Yr. 39**	**Yr. 40**
A. Shad Fry Production	31,600	40,600	31,600	31,600	31,600
Annual Population Assess.	14,915	14,915	14,915	14,915	16,565
Out-migrating Juvenile	35,600	35,600	35,600	35,600	35,600
Study Coordinator	40,000	40,000	40,000	40,000	40,000

(27) During or after Year 4, NMFS and/or USFWS will determine, in coordination with NCWRC and VDGIF, when to transition into Phase 2, based on a) adult and juvenile movement through the reservoirs, and b) obtaining a lower river American shad population estimate of approximately 20,000 adults based on two annual spawning run population estimates, which do not have to be consecutive, as determined by the annual baseline population estimate (see section 18), The determination will also take into account available scientific and fishery management information. The need to transition to Phase 2 will be assessed annually by NMFS and USFWS until a decision is made to proceed to Phase 2.

(28) Within 12 months after a decision has been made by NMFS and USFWS to proceed to Phase 2, the Licensee shall submit the final design and operation plan for the fishway facilities for USFWS and NMFS approval. The Licensee shall submit final design and operation plan of the Phase 2 fishway facilities for USFWS and NMFS approval within 12 months after a decision has been made to proceed to Phase 2.

(29) Within two years after the decision to proceed to Phase 2, the Licensee shall complete construction, engineering testing, and effectiveness evaluation and initiate operation of a trap/sort/transport facility at Roanoke Rapids Dam to provide safe, timely, and effective passage upstream. The design capacity of the facility shall be for 500,000 American shad annually. Within 2 years of the decision to proceed to Phase 2, the Licensee will construct and initiate operation of a trap/sort/transport facility at Roanoke Rapids Dam to provide safe, timely and effective passage upstream.

(30) During Phase 2:

(a) The Licensee will fund and operate the Phase 2 facility, and provide funding for additional Phase 2 studies and measures per Table FS2-2.

(b) The Licensee will operate the trap and transport facility for a period of time each year sufficient to encompass 8 to 12 weeks of the peak(s) of the A. shad migration season, as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures.

(c) The Licensee shall provide transport capacity (number of trucks, tanks, etc.) in each shad migration season sufficient to pass the number of A. shad that are anticipated will be trapped that season, as decided upon by the members of DFRTAC through its decision-making and dispute resolution procedures up to the estimated capacity of the basin between Roanoke Rapids and Kerr Dams, currently estimated at 50,000 A. shad.

(d) Any species of anadromous fish may be transported within the transport capacity and timeframe of the trap and transport operation in any given year, provided that transport of species other than A. shad is incidental and does not place undue burden on the Licensee.

(e) The Licensee shall haul the A. shad to any location identified by the Agencies within a geographic radius determined by the number of road miles between the Roanoke Rapids dam and sufficiently upstream of Kerr Dam to minimize fallback through the turbines.

(f) The Licensee will make any trapped fish (including any adult fish in excess of the above mentioned 50,000) available to the USFWS, NMFS, NCWRC, NCDMF, USGS or the VDGIF who want to sort and move them at their own expense to other locations within the Roanoke River Basin.

(g) The Licensee will continue to fund studies agreed to above (section 25) in Phase 2.

(h) If the juvenile A. shad mortality is expected or demonstrated pursuant to Technical Settlement Article 4.1.2.2 to be greater than 7%, the Licensee shall cooperate with Agencies to make minor adjustments in operations to facilitate downstream passage of outmigrating A. shad. Minor adjustments may include installation of low cost technologies such as lighting, as well as changes in the operational regime of the Projects. Spillage will not be required at Gaston for Phase 2 for American shad. Adjustments to operations will only be required during the days of peak outmigration of juvenile A. shad. This window may vary from year to year and shall be determined by the Agencies. Major adjustments shall require exercise of reserved mandatory conditioning and prescriptive authority by the Agencies.

(i) If the post spawned adult A. shad mortality is expected or demonstrated to be greater than 20%, then the members of DRFTAC will cooperatively assess the current state of knowledge regarding the contribution of post spawned adults to stock dynamics, and the need for adjustments to reduce mortality. Minor adjustments shall be made by the Licensee as decided upon with the other members of DFRTAC through its decision-making and dispute resolution procedures. Minor adjustments shall be similar in scope to adjustments described in (h) for juvenile shad. Major adjustments shall require exercise of reserved mandatory conditioning and prescriptive authority by the Agencies.

(31) Phase 3 of the A. Shad passage program will involve the construction of further facilities or alteration of operations should the trap-and-haul facility in Phase 2 become inadequate, in the event of construction of a passage facility at the Kerr Dam, or in the event of the necessity of major measures to accomplish downstream passage. The decision by the USFWS and NMFS to enter into Phase 3 shall require exercise of the authority reserved to them under this license.

(32) Pursuant to Section 18 of the Federal Power Act, the Secretaries of Interior and Commerce herein exercise their authority under said Act by reserving their authority to prescribe fishways during the term of this license and by entering into the Comprehensive Relicensing Settlement Agreement with the Licensee and other parties.

Article 9. Lake Water Levels

The Licensee shall provide a structure for optimization of Lake Gaston and Roanoke Rapids Lake for ecological, cultural and recreational values while maintaining the Licensee's operational flexibility as set forth herein.

Lake water level is defined herein as surface water elevation expressed in feet above mean sea level (msl) and measured immediately upstream of the applicable Project dam. The Licensee shall make available, and update daily, on its website projected Lake Gaston water levels.

Normal Level. The Licensee shall operate the Project so that during normal operation Lake Gaston water level is maintained at 199.5 feet, +/- 0.5 foot (between 199 and 200 feet), and Roanoke Rapids Lake water level is maintained at 129.5 feet, +/- 2.5 feet (between 127 and 132 feet).

During the striped bass spawning season, water may be stored in Lake Gaston between elevations 200 and 201 feet for weekend downstream flow augmentation.

Notwithstanding the limits imposed above, the Lake Gaston water level may be allowed to fall below elevation 199 feet, but no lower than elevation 198 feet, for up to 48 hours during any one seven day period and up to 360 hours per calendar year and; Roanoke Rapids Lake water level may be allowed to fall below elevation 127 feet, but no lower than elevation 125 feet, for up to 48 hours during any one seven day period and up

to 360 hours per calendar year.

During April and May (bass spawning season), the Licensee shall consult with the NCWRC prior to reducing Lake Gaston water levels below 199 feet msl.

Minimum Levels. The minimum lake water level requirements may be temporarily modified if required by operating emergencies beyond the control of the Licensee.

Temporary modifications may occur upon agreement between the Licensee and the NCDWQ if flow release from Kerr Dam is insufficient to satisfy both the minimum flow and minimum lake water level requirements (see Technical Settlement Article FL7). Other short periods of level deviation may occur upon agreement between the Licensee and the NCWRC. If the minimum lake water level requirement is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 30 days after each such incident.

In the case of drought conditions declared by the USACE, this Article shall be superseded by License Article 6 and Technical Settlement Article FL6.

Maximum Levels. The maximum lake water level requirements may be temporarily modified if required by operating emergencies beyond the control of the Licensee.

During flood events as determined by the USACE, no upper limit on lake water levels shall apply. The Licensee will work in cooperation with the USACE at Kerr Dam in the case of flood events. Unless otherwise directed by the USACE, the Licensee will not allow the lake levels to exceed 203 feet at the dam in Lake Gaston and 132.75 feet at the dam in the Roanoke Rapids Lake. However, it is recognized that unusual flood events and the USACE releases from Kerr during these events dictate the operation of the dams. The Licensee shall work in cooperation with the Lake Gaston Association and Roanoke Rapids Lake Association to make notification to designated association officers when an unusual lake level event is expected to occur.

The Licensee shall implement this Article within one week after acceptance of the license by Licensee.

Article 10. Recreational Use Survey

The Licensee shall collect information on fish catch rates, fish harvest estimates, economic estimates, lake carrying capacity and user satisfaction with the recreational value of the lakes as set forth in this Article.

The Licensee shall provide to the NCWRC funding to conduct a recreational user survey once every five years at Lake Gaston or Roanoke Rapids Lake. The survey shall alternate between lakes and shall begin on Lake Gaston in the year 2003 or during the

first full year after the effective date of license, whichever is later. By mutual agreement between the NCWRC, VDGIF and Licensee, two consecutive surveys may occur on either Lake Gaston or Roanoke Rapids Lake (but no more than two) if it is determined that a particular lake needs more attention.

The Licensee shall consult with the NCWRC to reach an agree on the specific aspects of each survey design and results documentation needed. The NCWRC agrees to be responsible for conducting and reporting the results of the survey, and the Licensee shall file these results, along with its comments, as part of the Licensee's filing of annual reports to the Commission.

The Licensee shall fund the survey as set forth herein. The survey shall be conducted by NCWRC or its consultant. For funding purposes, the estimated cost of each survey is $40,000. The Licensee shall fund the cost of each survey up to a maximum of 20% over the estimated cost adjusted for changes in the CPI. The Licensee shall make the $40,000 payment by July 30 of the calendar year the survey is conducted. Any additional payment (up to 20% of the $40,000) shall be made after the survey is completed and within two months after satisfactory documentation of any additional costs is provided to the Licensee. The Licensee shall consult with NCWRC with respect to any under-run of the $40,000 fund in performing the survey may be utilized by the NCWRC to address related study issues on the Lakes in consultation with the Licensee.

Article 11. Waterfowl Management Area

The Licensee shall develop a structure that will aid in the seasonal flooding and de-watering of the western most part of the Project boundary in order to manage the area for migratory waterfowl as set forth in this Article.

Funding. The Licensee shall provide co-funding for the construction of a structure to enable controlled flooding of an area on the north side of Lake Gaston upstream of the U.S. Highway 1, VDGIF public boat landing

Other parties that may be co-funders include Ducks Unlimited, Delta Waterfowl, USACE, USFWS and VDGIF. The Licensee shall provide co-funding of $1 for each $1.50 contributed by the other parties up to a maximum contribution by the Licensee of $100,000 to the overall cost of this Project. The Licensee's funding shall become available within one year of the acceptance of the FERC Licensee by the license, and shall continue to be available until the $100,000 are fully utilized by the construction of the area, or construction of the area is completed.

Design and Operation. Licensee and representatives of the co-funding parties shall design the structure and manage the resulting Waterfowl Management Area pursuant to Technical Settlement Article LK3. The Licensee shall not be responsible for providing operating or maintenance funding.

The Licensee shall review and approve all design and / or construction plans to ensure the area in no way interferes with the operation of the Licensee's hydropower facilities and conforms with the Shoreline Management Plan requirements.

Article 12. Shoreline Management Plan

The Licensee shall participate in the collaborative review process and update of the Shoreline Management Plan as set forth within this Article.

Review of Shoreline Management Plan. The SMP shall be reviewed by the Licensee every five years. Review shall be in consultation with the NCWRC, the VDGIF, the LGA, the USFWS, the City of Roanoke Rapids and the RPLG.

The Licensee shall host at least one formal meeting, open to the public, with at least a 30-day advanced notice, during the five-year review. This review shall be in consultation with representatives from each of the groups listed above.

After review and comments are received and it is determined that updates are necessary, the Licensee shall submit a revised SMP to the Commission for approval.

The Licensee shall publish the revised SMP within 90 days of receiving the approved SMP from the Commission.

Construction Procedures. The Licensee shall keep the current construction procedures, permitting process and associated fees posted on the Licensee's webpage.

The Licensee may modify the construction procedures and permitting requirements upon mutual agreement with the NCWRC, VDGIF, LGA, the City of Roanoke Rapids and the RPLG.

The Licensee may charge fees commensurate with the costs of implementing the SMP.

The Licensee shall maintain records of construction or other permitted activities within the boundaries of the Project and to enforce compliance with the plan.

Article 13. Recreation Enhancements

The Licensee shall enhance recreational opportunities associated with the Project as set forth in this Article.

The Licensee shall contribute up to $1,611,120 for the construction of these recreation enhancements as described herein and in Tables RC1-1 and RC1-2.

Recreational Improvements. The Licensee shall make the following Recreation Improvements pursuant to Technical Settlement Article RC1, Section 2:

(1) Lake Gaston Day Use Area. The Licensee shall construct the day use area

described in Tables RC1-1 and RC1-3. The Regional Partnership of Local Governments (RPLG) agrees to apply for grant funding of up to $91,350 for the construction of recreation enhancements 2.1 and $7,040 for enhancement 2.10 listed in Table RC1-1. If the RPLG is unable to obtain full grant funding within three years after the Licensee's acceptance of this FERC license, Licensee shall proceed with the design, engineering and construction of a scaled down version of the Lake Gaston Day Use Area based on Licensee's funding commitment and any provided grant funding and shall have the facilities in operation within 1 year thereafter.

(2) Roanoke Rapids Day Use Area. The Licensee shall construct the day use area described in Tables RC1-1 and RC1-3. The City of Roanoke Rapids agrees to apply for grant funding of up to $317,100 for the construction of recreation enhancements 2.2 and $24,510 for enhancement 2.10 listed in Table RC1-1.

The Licensee shall develop, in consultation with the City of Roanoke Rapids and the RPLG, a long-term operation and maintenance plan for the Lake Gaston and Roanoke Rapids Day Use Areas. The plan shall be completed by the time the facilities are completed pursuant to Technical Settlement Article RC1, Sections 2.1.5 and 2.2.6. This Long-term plan shall address the following:

(a) Trash pick-up and removal;

(b) Hours of operation and fees to be collected;

(c) General guidelines for a recreational contractor to be included in a RFQ for said contractor;

(d) Guidelines for supervision for area activities and operation. Supervision shall include but not be limited to janitorial services, fee accounting and concession operation;

(e) Mowing and facility maintenance and repair will be performed by the Licensee as part of ongoing operation of the Dam facilities.

The Lake Gaston and Roanoke Rapids Day Use Areas shall be operated on a full time basis from Memorial Day through Labor Day. Hours of operation shall be 0900 to sunset, and shall be operated on a limited basis from March 1 to Memorial Day and from Labor Day through the second full weekend in November.

If the City of Roanoke Rapids is unable to obtain full grant funding within three years after the Licensee's acceptance of this license, Licensee shall proceed with the design, engineering and construction of a scaled down version of the Roanoke Rapids Day Use Area based on the Licensee's funding commitment and any provided grant funding and shall have the facilities in operation within one year thereafter.

Operation and maintenance costs to the Licensee of the Lake Gaston and Roanoke

Rapids Day Use Areas hall have an annual cap of $70,000.

(3) Lake Gaston Virginia Day Use Area. Licensee agrees to provide its share of funding for the Lake Gaston Virginia Day Use facility as set forth in Technical Settlement Article RC1. The VDCR agrees to have the facility in operation within 12 years of date of the Licensee's acceptance of this license.

(4) Roanoke Rapids Tailrace Fishing Area. Licensee will provide for the public access to the bypass reach within 4 years of the Licensee's acceptance of this license for the lawful uses and enjoyment of the resources therein, and in recognition that the bypass reach is an inherently dangerous reach of the Roanoke River, the safety of which the Licensee in no way validates, the Licensee will post signs at any new access points warning the public of the danger in using the area. The Licensee shall make improvements to the existing tailrace fishing area on the south side of the tailrace within one year of accepting this license. Licensee shall be responsible for maintenance of this area. The total cost to the Licensee for this enhancement shall not exceed $150,000.

(5) Water to Land and Bank Fishing Sites. The Licensee shall construct and have in operation Phase I sites from Table RC 1.2 within one year of the Licensee's acceptance of this license. Costs to the Licensee shall not exceed costs referenced in the table. The Licensee shall construct and have in operation Phase II sites from Table RC1-2 within 12 years of acceptance of this license. Costs to the Licensee shall not exceed costs referenced in the table. The Licensee shall construct and have in operation Phase III sites from Table RC 1-2 within 22 years of acceptance of this license. Costs to the Licensee shall not exceed costs referenced in the table.

The NCWRC and the VDGIF agree to maintain facilities listed in Technical Settlement Article RC1, Sections 2.5.1, 2.5.2 and 2.5.3 on a schedule currently used by the agencies for similar facilities. Maintenance shall include the appropriate level of trash removal. The water to land facilities shall have one composting type restroom facility and several durable, non-portable picnic tables. The Licensee on a monthly schedule from April through October shall maintain the facilities.

In the event the Licensee determines that enhancements listed in Table RC1.2 are not feasible, Licensee shall substitute development of a similar mutually agreed upon area in consultation with the NCWRC or VDGIF.

(6) Hawtree Creek Boat Landing. The Licensee shall provide funding up to $210,000 and the NCWRC agrees to provide co-funding of up to $105,000 for recreation enhancement 6. Licensee shall provide its share of funding for the facility within 1 year of issuance of this license. The NCWRC agrees to have the facility in operation within 2 years of date of the Licensee's acceptance of this license.

The Licensee shall provide to the NCWRC a sum of $5,000 per year per boat landing on Roanoke Rapids Lake and Lake Gaston for operation and maintenance of 6 boat landing sites. This sum shall not exceed an annual cost of $30,000 per year. The

NCWRC agrees to be responsible for operation and maintenance of the facilities with no additional funding from the Licensee.

(7) Boat Landing Lighting. Licensee shall construct and have in operation recreation enhancement 7 within 1 year of date of the Licensee's acceptance of this license. The NCWRC agrees to be responsible for all operation and maintenance costs associated with this enhancement once construction is complete.

(8) Lake Gaston Mile Marker Buoys. Licensee shall construct, have in operation and maintain Recreation Enhancement number 8 within 1 year of date of the Licensee's acceptance of this License.

Operation Funding. Licensee shall provide to the NCWRC $1000 per year for the life of the license for the purpose of community outreach. The funding shall go directly to support outreach programs related to Lake Gaston or Roanoke Rapids Lake.

Signage. The Licensee shall place appropriate signage at each recreation site. The signage shall include at a minimum the lake and associated recreation site name, FERC Project number and required FERC public access language. Signage will be placed at the completion of the individual site enhancement.

Costs of signs shall not exceed $1000 per site for the sites. Signs shall be placed at all boat landings (12), all bank fishing sites (13) and all day use areas (3). Signs shall be placed within 2 years of Licensee's acceptance of license or within 6 months of completion of construction of a newly developed enhancement.

The Licensee in consultation with the NCWRC, VDGIF and VDCR may determine that it is more effective for the sign cost allotment be paid to the agency versus Licensee installation.

Paddler Recreation. All issues related to down-stream paddler recreation are addressed in Technical Settlement Article RC2.

TABLE RC1-1

Description	Total Est. Costs	Licensee Contribution	Grant or Co-Fund
2.1. Lake Gaston Day Use Area Upgrade (See table RC1.3 for details)	175,350	84,000	91,350
2.2. Roanoke Rapids Lake Day Use Area (see Table RC 1.3 for details)	737,100	420,000	317,100
2.3. Lake Gaston Virginia Day Use Area	772,800	472,500	300,300
2.4. Roanoke Rapids Tailrace Fishing Area (includes bypass reach)	150,000	150,000	0
2.5. Two water to land facilities and 13 bank fishing sites	168,000	168,000	0

2.6. Construct Hawtree Creek Boat Landing	210,000	105,000	105,000
2.7. Provide Lighting at 6 NC Boat Landings	6,300	6,300	0
2.8. Lake Gaston Mile Marker Buoys	32,500	32,500	0
2.9. Design and Engineering for Above (exclude items 3 and 6)	105,000	105,000	0
2.10. Allowance for Uncertainty and Design Refinements (excludes items 3 and 6)	197,162.50	124,320	62,842.50
	2,554,212.5	1,667,620	876,592.5

TABLE RC1-2
Water-to-Land Areas and Bank Fishing Sites

Lake	Description	Development Phase	Estimated Cost
Gaston	Water-to-land area on small island near Nocarva Marina	I	21,000
Gaston	Tailrace fishing area at Lake Gaston Dam, expand area towards dam, provide access, improve road to area.	I	10,500
Gaston	Bankfishing area at north end of Lake Gaston Dam	I	10,500
Gaston	Bankfishing area (floating dock, access path) at NCWRC boat landing at Stonehouse Creek	I	24,000
Gaston	Area where 615 crosses Miles Creek.	I	10,500
Roanoke Rapids	Bypass reach area	I	4,500
Roanoke Rapids	Thelma Landing boat ramp, install floating fishing pier.	II	24,000
Roanoke Rapids	North end of Roanoke Rapids dam	II	10,500
Gaston	Water-to-land facility on Goat Island	II	21,000
Roanoke Rapids	Area on north side of Roanoke Rapids Lake	III	10,500
Gaston			
Gaston	Area near Kerr Dam Tailrace Landing Park	III	10,500
Total			157,500

Development Phases:
Phase I - within 1 year after acceptance of a new FERC license by Licensee.
Phase II - within 12 years after acceptance of a new FERC license by Licensee.
Phase III - within 22 years after acceptance of a new FERC license by Licensee.

TABLE RC1-3
Recreation Enhancements

1. Lake Gaston Dam Day Use Area (upgrade): Detailed Cost Estimate		
Circular gravel drive with 49 wheel stops	$ 35,280	
25 new tree plantings	$ 6,615	
New swimming area 30'x200'		$ 3,675
15-foot extension to the existing fishing pier		$ 2,205
12 new picnic tables	$ 6,930	
10 new trash cans		$ 1,785
2 new horseshoe pits	$ 315	
Convert existing slab to basketball court includes resurfacing and painting		$ 3,465
Resurface slab for trike lot		$ 1,890
Construct picnic pavilion with changing rooms	$ 89,355	
Install a small sand play area (no equipment) with timber border		$ 420
Handicapped path along beach to pier (4'wide paved sidewalk)		$ 5,565
Entry sign		$ 525
Information kiosk		$ 1,575
Toilets (leased portable toilets)		$ 0
Allowance for mulching and seeding of the area	$ 15,750	
Total for area	$ 175,350	

2. Roanoke Rapids Lake Peninsula Park Day Use Area:		
Additional clearing and grubbing		$ 8,400
Two lane paved road to site (this includes clearing & grubbing for road access and for peninsula and undergrowth clearing)		$ 56,070
Extension of canal trail through woods (6'-8' wide, mulched area)		$ 19,950
Nature trail and fitness loops	$ 40,950	
Gravel surface parking for 100 cars	$ 28,455	
Renovation/expansion of beach area	$ 17,010	
Information kiosks		$ 4,725
5 trash cans		$ 945
Two horseshoe pits		$ 315
Frisbee™ golf course	$ 630	
14 new picnic tables		$ 8,085
3 single sheltered tables for family outings		

(includes slab, tables, covered shelter)		$ 70,875
Covered picnic pavilion for use by up to 40 people	$ 70,875	
Concrete area 50'x 90' plus walkway	$ 34,440	
Restroom facility, changing area, and showers near beach area		$ 91,400
Covered picnic pavilion with restroom area, can accommodate up to 100 people and includes picnic tables, and tie-ins to county sewage and water.		$ 183,700
Concession stand (does not included kitchen equipment)		$ 23,100
Allowance for children's play equipment with conventional and Modular playground equipment.	$ 29,400	
Allowance for sanded volleyball court		$ 735
Handicapped accessible fishing pier	$ 12,390	
Six-foot chain link fence and additional fencing with gate to separate public area from NCP private area.		$ 11,550
Security Lighting		$ 15,750
Trailer/RV site with electrical, water, and sewer hookup		$ 7,350
Total for area		$ 737,100

Article 14. Lower Roanoke River Recreation Flows

Licensee shall enhance conditions for recreational paddling between Highway 48 and the Weldon boat ramp by improving public information, and increasing the reliability and frequency at which water elevation and flow conditions are maintained within a desirable range, as specified in this Article. In execution of its duties under this Article, Licensee shall recognize that preferred flows for whitewater boating in the Weldon reach of the lower Roanoke River vary from about 2000 cfs to 3300 cfs, and that concurrent with these flows, the stage for the Halifax USGS gage should ideally be less than 20 feet.

Licensee shall execute its duties as a member of the Cooperative Management Team (CMT) established pursuant to Technical Settlement Article RC2 and consisting of Licensee, the Carolina Canoe Club, the NCDENR and one representative from the City of Roanoke Rapids and Halifax County area as appointed by these jurisdictions' City or County Manager.

To the extent this Article conflicts with provisions of License Articles 2, 3, 4, 5 or 6 or Technical Settlement Article FL6, this Article is superseded. Any changes to the listed Articles that result in an effect on recreation flows described in this Article shall be addressed as described in Assessment and Adjustment of Flows, below.

Advanced Planned Releases. Licensee shall provide recreational flow releases for two weekends in July, one weekend in August and Labor Day weekend (for a total of four weekends). One of the July weekends shall be the weekend closest to July 4.

If the USACE weekly declaration for the week coinciding with a designated weekend is greater than or equal to 6,000 cfs and the Project is not in flood control mode, Licensee shall be required to provide releases for one weekend day only. Otherwise, Licensee shall provide releases for both weekend days. Licensee shall determine the single day in advance. The single days shall be two Saturdays and two Sundays. Licensee shall post on Licensee's web page, by 1000 hours on the Friday preceding the recreational flow release, the planned recreational flow release volume and times that the scheduled flow will be provided.

Licensee shall post on its web page by April 1 each calendar year (1) the four scheduled weekend dates for the year, and (2) the scheduled single days for each of those weekends.

When advanced planned releases are provided, Licensee shall end peaking operations by (1) 2000 hours on the Friday preceding the advanced planned release if the USACE weekly declaration coinciding with the release is less than 6000 cfs or (2) 1800 hours on the Friday or 1600 hours on the Saturday prior to the single-day advanced planned release if the USACE weekly declaration coinciding with the release is equal to or greater than 6000 cfs. In either case peaking may commence again at 2000 hours on the last day of the weekend release.

If a planned weekend flow release is cancelled due to emergencies or flood control, Licensee shall make a good faith effort to reschedule another planned weekend release.

Short-term Planned Releases. During weekends other than those for which advanced planned releases are scheduled, Licensee shall provide recreational flow releases as specified below. If the USACE weekly declaration is less than or equal to 4000 cfs, Licensee shall provide recreational flows for both weekend days. If the USACE weekly declaration is less than 6000 cfs and greater than 4000 cfs, Licensee shall be required to provide recreational flows for one weekend day. Otherwise, Licensee shall have no obligation to provide recreational flows during the weekend.

Licensee shall post on Licensee's web page, by 1000 hours on the Friday preceding the recreational flow release, the planned recreational flow and the times that the scheduled flow will be provided. Licensee shall provide short-term planned releases between June 16 and October 31 of each calendar year.

When short-term planned releases are provided, Licensee shall end peaking operations by (1) 1600 hours on the Saturday of the weekend during which the short-term planned release is provided if the USACE weekly declaration coinciding with the release is greater than 4000 cfs but less than 6000 cfs or (2) 2000 hours on the Friday prior to the

weekend during which the short-term planned release is provided if the USACE weekly declaration coinciding with the release is less than or equal 4000 cfs. In either case peaking may commence again at 2000 hours Sunday.

Information Requirements. Licensee shall maintain a public recreational flow web page which shall include: (1) a daily update of predicted load following conditions for the next two days posted by 1000 hours each day; (2) a link to the USGS Roanoke Rapids flow and gage data; (3) either a link to the USGS Halifax gage or a web camera view of the Weldon rapids; (4) the dates of the advanced planned weekend releases; and (5) the USACE weekly flow declaration. The web page shall also include any other information required by this Article, posted as specified in this Article. Licensee shall provide gage data or a web camera view beginning six months after acceptance of this license.

Licensee shall prepare an annual report of the weekend recreational flows for nine recreational releases. The nine reported weekends shall include one in June and two in each of July, August, September and October, and shall include the four advanced planned releases. The report shall include: (1) the dates of these nine weekend recreational releases and indicate which dates are advanced planned and which are short-term planned releases; (2) the weekly declarations affecting each reported release; (3) the time that peaking ceased on the day preceding each day of each reported release; (4) the Halifax gage reading or web camera view at 0900, 1200 and 1500 hours on the first day of each of the nine reported releases, that is, the first day following peaking operation. Licensee shall provide each annual report to NCDWR and Carolina Canoe Club no later than February 15 of the year following each season of recreational releases. Licensee shall post the report on the web page required by this Article. Licensee shall provide the report(s) as an addendum to the Form 80 Recreational Use Report to the Commission on the schedule required by the Commission.

Assessment and Adjustment of Flows. Licensee shall convene a meeting of the CMT within one year of acceptance of this license and with the consensus of the CMT, establish indicators that determine if the objectives of this Article are being met.

Licensee shall convene a meeting of the CMT by February 15 of the year following the fifth year of recreational releases and every fifth year thereafter. If after any five-year review cycle, described below, the CMT determines that no further flow adjustments for whitewater recreation can be made, this reporting requirements shall be terminated.

The purpose of the meetings shall be to review the implementation of this Article and Technical Settlement Article RC2 and identify any possible improvements. If after any five-year report and subsequent CMT meeting a consensus of the CMT agrees that flows are not satisfactory to provide recreational flows intended in this Article, Licensee shall adjust the recreational flows, at the direction of the CMT, in order to meet the established objectives. As appropriate, Licensee shall make adjustments in increments approaching the limits described below.

If changes to the river regulation rules at Kerr Reservoir or adaptive changes made through Articles 3 or 4 occur, Licensee shall convene a joint meeting of the CMTs established in this Article and Article 3 or 4, respectively, to address effects of such changes on recreational releases and seek to modify operations such that the Project operations meet the objectives of Articles 3 and 4, and, to the extent possible, provides the enhancements intended by this Article. If the USACE amends the guide curve or rule of operation for Kerr Reservoir, Licensee shall convene a meeting of the CMT within six months of implementation of such amendment and, if the CMT determines that changes to recreational releases are required in response to such amendment, Licensee shall implement such changes within one year of the implementation of such amendment.

Licensee shall not be required to adjust any flows as directed by the CMT unless the CMT, by consensus, concludes that a preponderance of the evidence indicates that such adjustment would result in a significant improvement for paddlers using the resource. Licensee shall not be required, pursuant to this Article, to cease peaking operations on any Friday prior to 1700 hours or to cease peaking operations on any Saturday prior to 1600 hours.

Other Requirements. Licensee shall not be required to provide recreational flows during an electrical demand emergency or if the USACE Kerr facility is in a flood control mode. During droughts, Licensee shall cooperate with the USACE to provide lower Roanoke River flows that balance the water demand needs of all basin stakeholders. Under a declared drought, Licensee shall release flows less than 2000 cfs when so directed by the USACE in consultation with the NCDWQ.

For the purpose of ensuring flows, hardware and reports to the Commission, Licensee is fully responsible for compliance with this Article, except that if a web camera is installed, Licensee shall fund fifty percent of the first $10,000 of the cost of installation and one hundred percent of cost exceeding $10,000. Licensee shall fund fifty percent of annual operation and maintenance costs of the web camera.

For the purposes of this Article, "weekend days" means Saturday and Sunday.

Licensee shall provide the recreational flow releases specified in this Article by June 16 or beginning no later than thirty days from the acceptance of this license, whichever is later.

Article 15. Dispute Resolution

Except as specifically provided in Article 8, the Licensee shall engage in the dispute resolution process of Section 6 of the General Procedures of the Comprehensive Relicensing Settlement Agreement.